THE ROLE OF REGISTERED NURSES IN DIABETES DISEASE MANAGEMENT PROGRAM

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Objectives

- Provide information on diabetes in California/Los Angles County
- Present the status of diabetes in South Los Angeles
- Provide the data to support extending the role of the RN
- Provide the next steps

California Racial/Ethnic Makeup (2000)

- Asians make up 11% of California's population.
- African Americans make up 6% of California's population.
- Latinos make up 32% of California's population.
- Native Americans and Alaska Natives make up 0.5% of California's population.
- Native Hawaiians and other Pacific Islanders make up 0.3% of California's population.

Source: U.S. Census Bureau, Population Division,

Health Disparities in California

- Racial and ethnic disparities exist in numerous areas of diagnosis, treatment, and preventive care, even when income, insurance status, and other socioeconomic factors are held constant.

- Across a wide range of health conditions and clinical services.

- Disparities remained even when clinical factors, such as stage of the disease presentation, co-morbidities, age, and severity of the disease is taken into account.

IOM 2002 Unequal Treatment Confronting Racial and Ethnic Disparities in Health Care

SOCIAL REASONS FOR HEALTH CARE DISPARITIEIS

- Individual's:
  - Financial resources
  - Education
  - Availability of health services
  - Availability of foods
- Community:
  - Housing
  - Transportation,
  - Number of people in /family size

The Burden of Disease in Los Angeles County: A Study of the Patters of Morbidity and Mortality in the County Population (2000)

SOCIAL REASONS (Cont.)

- Health system:
  - Access: location, culturally sensitive environment
  - Quality: High Literacy, poor quality
  - Availability: Hours of operation (M-F)
  - Lack of healthcare workforce diversity

- Government:
  - Policies
  - Public Spending

The Burden of Disease in Los Angeles County: A Study of the Patters of Morbidity and Mortality in the County Population (2000)

ECONOMICS AND EDUCATION
MAIN SOCIAL CONTRIBUTORS

Income Below Poverty Level (California, 1999)

- 22% of African American have an income below poverty level
- 22% of Latinos have an income below poverty level
- African American, Latinos, Native American and Alaskan Natives are more than 2.5X more like then Whites to have an income below poverty level.

Percent of Adults with No High School Diploma (California, 2000)

- 20% of African American adults have no high school diploma.
- 52% of Latino adults have no high school diploma, more than any other racial/ethnic group, and almost 5 times more than their White counterparts

Source: U.S. Census Bureau, Population Division,

ACCESS TO CARE

- African Americans (92.2%) and Whites (89.6%) are more likely than others to have a usual place to go to for medical care.

- 76.2% of Latinos have a usual place to go to for medical care. Latinos are less likely than any other racial/ethnic group to have a usual source of care

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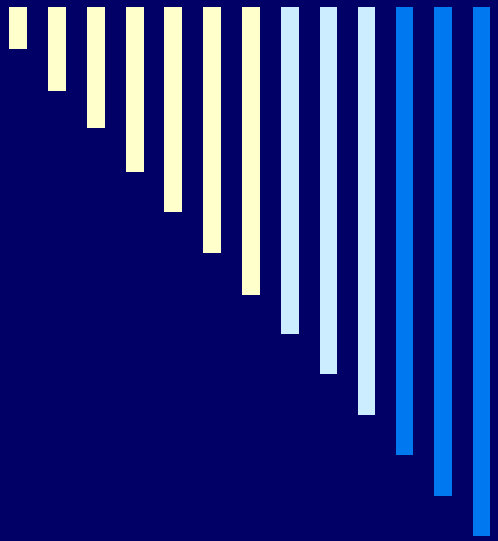
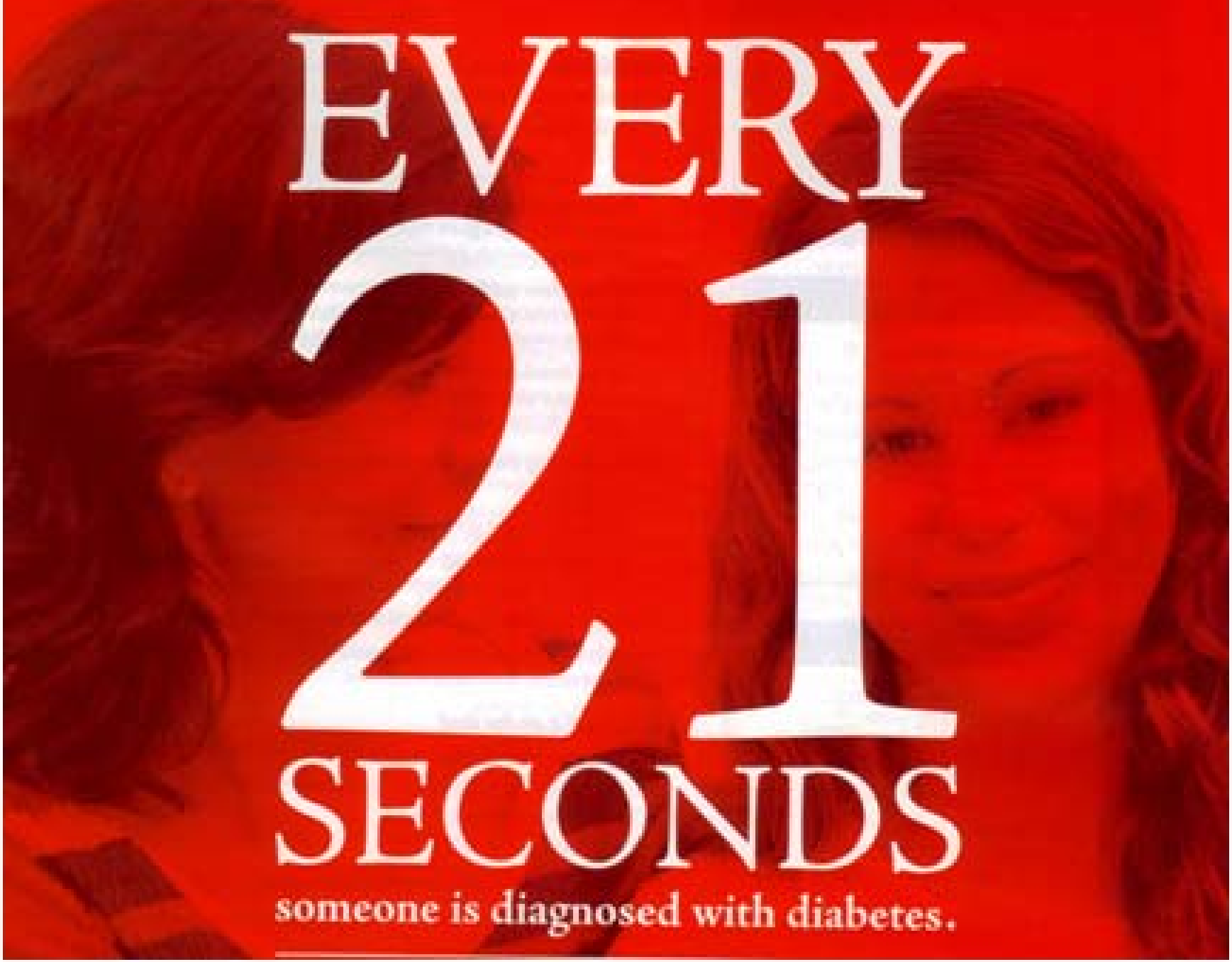
CULTURAL

- Individual's:
  - Language barriers
  - Nutritional practices
  - Occupation/Type of work
  - Health care practices and beliefs
- Community:
  - Housing
  - Transportation,
  - Number of people/family size



DIABETES THE SILENT KILLER


EVERY
21
SECONDS
someone is diagnosed with diabetes.

CHILDREN AND DIABETES

- Children account for 50% new cases of diabetes in communities of color.
- 38.5% of girls born in 2000 will have diabetes in their life time and 32.8% of boys.

THE IMPACT OF DIABETES IN CALIFORNIA'S FUTURE

- Economical (estimated to be more than 17.9 billion dollars per year)
- Current trends continue children born in 2000

  -32.8% of boys will have diabetes

  -38.5% of girls will have diabetes

Los Angeles County Department of Health Services 2002–2003 Press Release: *In Los Angeles County,*

- This report assessed diabetes prevalence among Latinos in Los Angeles County, the county with the largest urban Hispanic population.
- Findings: diabetes continues to disproportionately affect Latinos compared with non-Hispanic whites and that it is strongly associated with poverty.
- These findings illustrate the need to provide additional diabetes prevention and treatment interventions for the Latino population in the county, particularly for Latinos living in poverty.

The Burden Of Diabetes Across All Ethnicities And Age

Age	African American	Latino	Native American/ Alaska Native	Asian	White
0-9 years	0.7%*	0.8%*	--	--	1.5%*
10-19 years	0.7%*	2.6%*	4.9%*	0.8%*	4.5%
20-29 years	**2.5%***	**12.2%**	**5.5%***	**3.3%***	**3.5%**
30-39 years	**17%**	**21.2%**	**17.8%***	**17%**	**10.9%**
40-49 years	**25.8%**	**25.6%**	**22.6%***	**23.3%**	**19.7%**
50-59 years	**29.3%**	**22.8%**	**31%**	**23.2%**	**26.2%**
60-69 years	17.2%	10.4%	11.5%*	18.2%	19.6%
70 years or older	6.8%	4.3%	5.4%*	14.2%	14.1%

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Los Angeles County

9th Largest Population in US

- Exceeds 9.5 Million Residents
- 88 cities over 4,000 square miles

Culturally Diverse Population

- 45% Hispanic, 34% White, 13% Asian/Pacific Islander, 9% African-American, < 1% American Indian
- Over 51 different languages spoken
- 23% are non-US citizens

18% Live in Poverty (< 100% FPL)

35.9% of Residents are Uninsured

- 38% of adult uninsured are Hispanic

Source: Census 2000; LAC Health Reports, 2000 – 2002, LAC DHS Key Indicators of Health 2004

SOUTH LOS ANGELES Service Planning Area 6 (SPA 6)

50th largest population in US

- ~ 960,000 residents
- 54% Hispanic
- 41% African-American

Highest rates of disease prevalence in LA County

- Hypertension (25.4%)
- Diabetes (9.2%) and diabetes mortality (38%)
- Adult obesity (30%)

Poorest health behaviors in LA County

- Sedentary lifestyle (47.4%)
- Nutrition: fruit/vegetable servings (8.9%)

Lowest rate of adults diagnosed with depression (6.6%) in LA County

Source: Census 2000; LAC Health Reports, 2000 – 2002, LAC DHS Key Indicators of Health 2004

Leading Causes of Death in Los Angles County

- Cardiovascular Disease
- Stroke
- Tracheal/Bronchus/Lung Cancer
- Pneumonia
- Emphysema
- Diabetes

Causes of Premature Mortality LA County

- Coronary heart disease (70,000 years of healthy life lost annually)
- Depression (45,000 years of healthy life lost annually)
- Diabetes (42,000 years of healthy life lost annually)
- Stroke (32,000 years of healthy life lost annually)
- Lung cancer (29,000 years of healthy life lost annually)

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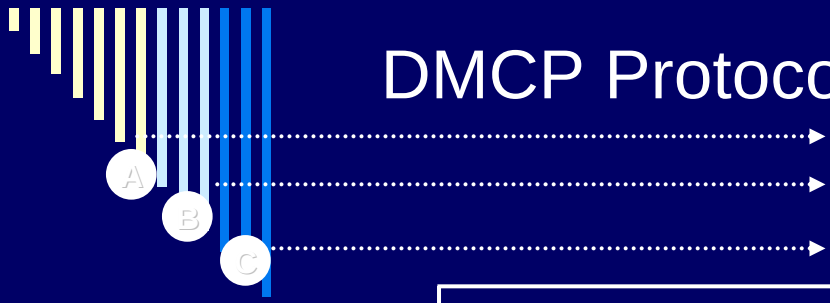
SOLUTION

Diabetes Disease Management Program (DDMP)

- Trained Nurse Working with Diabetologist
  - 2 to 4 week training period (to learn protocols)
  - Responsible for all diabetes-related care (initial and follow-up care)
- Medication Protocols
  - Oral medications (start and adjustment)
  - Insulin (start and adjustment)
  - Statin / ACE Inhibitor therapy (start and titration)
- Laboratory Tests
- Registered Dietitian Provides Nutrition Plan
- Referrals (primary care support, mental health, diabetes and prevention screenings, etc)
- Health Education

DMCP Protocol Example: Oral Sulfonylureas



Wait two weeks
Measure FPG[1]

< 100 mg/dL

- Lowest dose of SA → Consult MD[1] on Protocol #11
- Not lowest dose → Decrease one step → Follow at B above

100-139 mg/dL → No change

≥ 140 mg/dL

- Submax dose → Increase one step → Follow at B above
- Max dose → See Metformin Protocol

D, E

Wait two months (if at max dose follow on Protocol #5 at A)
Measure FPG and Glyco

< 100 mg/dL

- Sxs of hypoglycemia → Consult MD[1] Protocol #11
- No sxs of hypoglycemia → Glyco
  - < 1.5% above ULN
    - Lowest dose of SA → Consult MD[1] on Protocol #11
    - Not lowest dose → Decrease one step → Follow at B above
  - ≥ 1.5% above ULN → Consult MD[1] on Protocol #11

100-139 mg/dL

- Sxs of hypoglycemia → Consult MD[1] on Protocol #11
- No sxs of hypoglycemia → Glyco
  - < 1.5% above ULN → No change → Follow at D above
  - ≥ 1.5% above ULN → Increase one step → Follow at B above

≥ 140 mg/dL → Glyco

- < 1.5% above ULN → Consult MD[1] on Protocol #11
- ≥ 1.5% above ULN → Increase one step → Follow at B above

1=Disregard glyco if also measured at this time.
ULN = upper limit of normal for the assay. FPG = fasting plasma glucose. Glyco = glycated hemoglobin level

Process Measure

of tests/exams performed per period of time or whether specific treatment being given

Outcome Measure

actual results of test or effect of treatment

CURRENT AMERICAN DIABETES ASSOCIATION GUIDELINES

		Frequency	Goal
1.	Hb A1c	every 6 months if goal attained; every 3 months if greater	<7%
2.	LDL Cholesterol	yearly or more often as necessary	<100 mg/dl
3.	Triglycerides	yearly or more often as necessary	<150mg/dl*

*Once LDL cholesterol at goal, the NCEP suggests considering treatment for triglyceride concentrations >200 mg/dl if the non-HDL cholesterol is >130 mg/dl.

CURRENT AMERICAN DIABETES ASSOCIATION GUIDELINES

4. Renal profile – yearly or more often as necessary

a) Dipstick for proteinuria

(1) if ≥ 1+ positive, (and not due to an other identifiable cause, e.g., infection, bleeding ACE inhibitor unless contraindicated; serum creatinine every 6 months:

(2) if dipstick negative or trace; evaluation for microalbuminuria; if positive and confirmed, ACE inhibitor unless contraindicated.

CURRENT AMERICAN DIABETES ASSOCIATION GUIDELINES

5. Blood pressure – minimum every 6 months (or more often as necessary) as long as target level of ≤130/80 mm Hg met.
6. Visits-minimum every 6 months as long as all goal levels met; otherwise a contact at least every 3 months.
7. Eye exam-yearly dilated funduscopic exam in all diabetic patients except type 1 patients within 5 years of diagnosis.

CURRENT AMERICAN DIABETES ASSOCIATION GUIDELINES

- Foot examinations- minimum every 6 months or more often as necessary.
- Weight – minimum every 6 months.
- Smoking assessment – yearly; if current smoker, counseling or referral for cessation.
- Aspirin (75-325 mg/day) in patients >30 years of age with macrovascular disease or one or more cardiovascular risk factors (unless contraindicated).

CURRENT STATUS OF DIABETES CARE

- Percent of diabetic patients meeting all three A1C, LDL cholesterol and BP goals – 2-10%
- Outcomes worse in minority populations
- No intrinsic differences among different ethnic/racial populations (except for renal disease)

DEMOGRAPHICS

Number of Patients – 367

Age – 51.2 ± 10.6 years

Disease Duration – 6.9 ± 6.6 years

Females – 71%

Race/Ethnicity

African-American - 80 (22%)

Latino - 283 (77%)

Caucasian - 2 (0.5%)

Asian - 2 (0.5%)

Type 1 diabetes – 2 (0.5%)

Type 2 diabetes – 365 (99.5)

EDUCATION AND INCOME LEVELS

- Subset of Latino patients (137/283) queried
- Education (n=102) – 73% had 6th grade or less
- Household Income (n=63) – 95% <$25,000

PROCESS MEASURES

- Overall, all ADA-recommended process measures were carried out significantly more ($P<0.001$) during nurse-directed diabetes care (98%) than during the year prior (54%).

OUTCOME MEASURES

(Hb A1C - %)

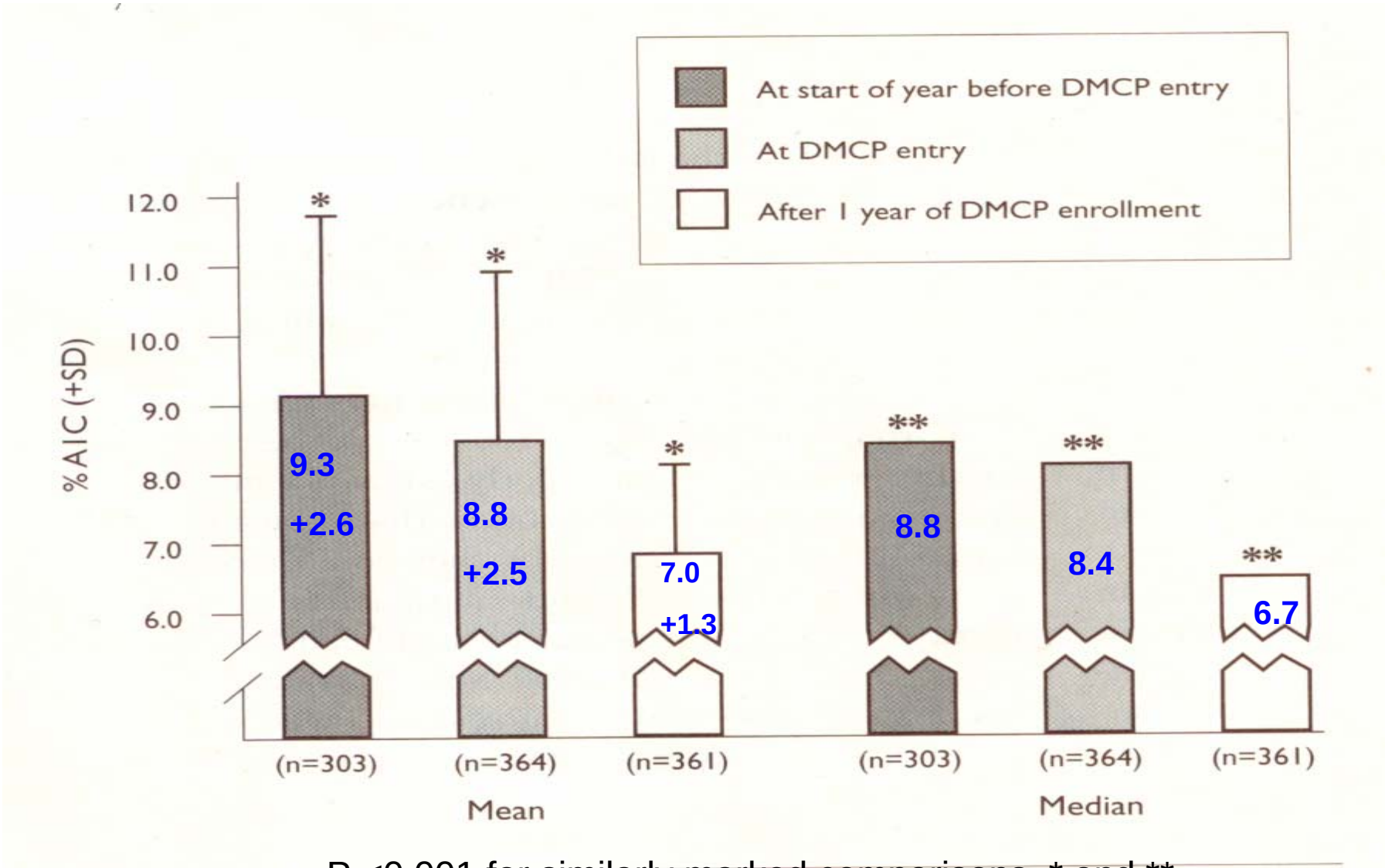
	Usual Care* (n=303)	Nurse-Directed Care (n=364)+	P Value
Initial	9.3 ± 2.5	8.8 ± 2.5	<0.001
Final	8.7 ± 2.4	7.0 ± 1.3	<0.001
Change	-0.6 ± 2.8	-1.8 ± 2.6‡	<0.001
P Value	<0.001	<0.001	

*Prior year

+3 patients had hemoglobinopathies

‡ n= 361 (3 patients had only one test)

A1C LEVELS



P <0.001 for similarly marked comparisons, * and **

OUTCOME MEASURES
(Hb A1C – Percent meeting goal of <7.0%)

	Usual Care* (n=303)	Nurse-Directed Care (n=361)	P Value
Initial	17%	28%	<0.001
Final	28%	59%	<0.001
P value	<0.001	<0.001	

* Prior year

OUTCOME MEASURES

(LDL Cholesterol – Percent meeting goal*)

	Usual Care** (n=244)	Nurse-Directed Care (n=366)	P Value
Initial	51%	50%	NS
Final	50%	82%**	<0.001
P Value	NS	<0.001	

*Goal <130 mg/dl in year 1 and <100 mg/dl in years 2 and 3

**Prior year

**352 patients had at least 2 values

TOTAL URGENT CARE AND EMERGENCY ROOM VISITS AND HOSPITALIZATIONS

	Year Prior	Nurse-Directed Care
Urgent Care	30	19
ER	49	25
Hospitalizations	16	8
Total	95	52

45% reduction

(P <0.001)

PREVENTABLE DIABETES-RELATED URGENT CARE (UC) AND EMERGENCY ROOM (ER) VISITS AND HOSPITALIZATION

Causes	UC/ER Visits		Hospitalizations	
	Year Prior	DMCP	Year Prior	DMCP
Metabolic*	11	1	2	0
Infection**	4	4	4	1
Total	15	5	6	1

*Hyperglycemia, hypoglycemia, DKA
**Foot ulcer, cellulitis, fungal

TOTAL CHARGES FOR URGENT CARE AND EMERGENCY ROOM VISITS AND HOSPITALIZATIONS

Year Prior	DMCP
$129,426	$24,630

LIMITATIONS OF STUDY

Patients may have used non-county centers (unlikely because only 15% had any kind of insurance)

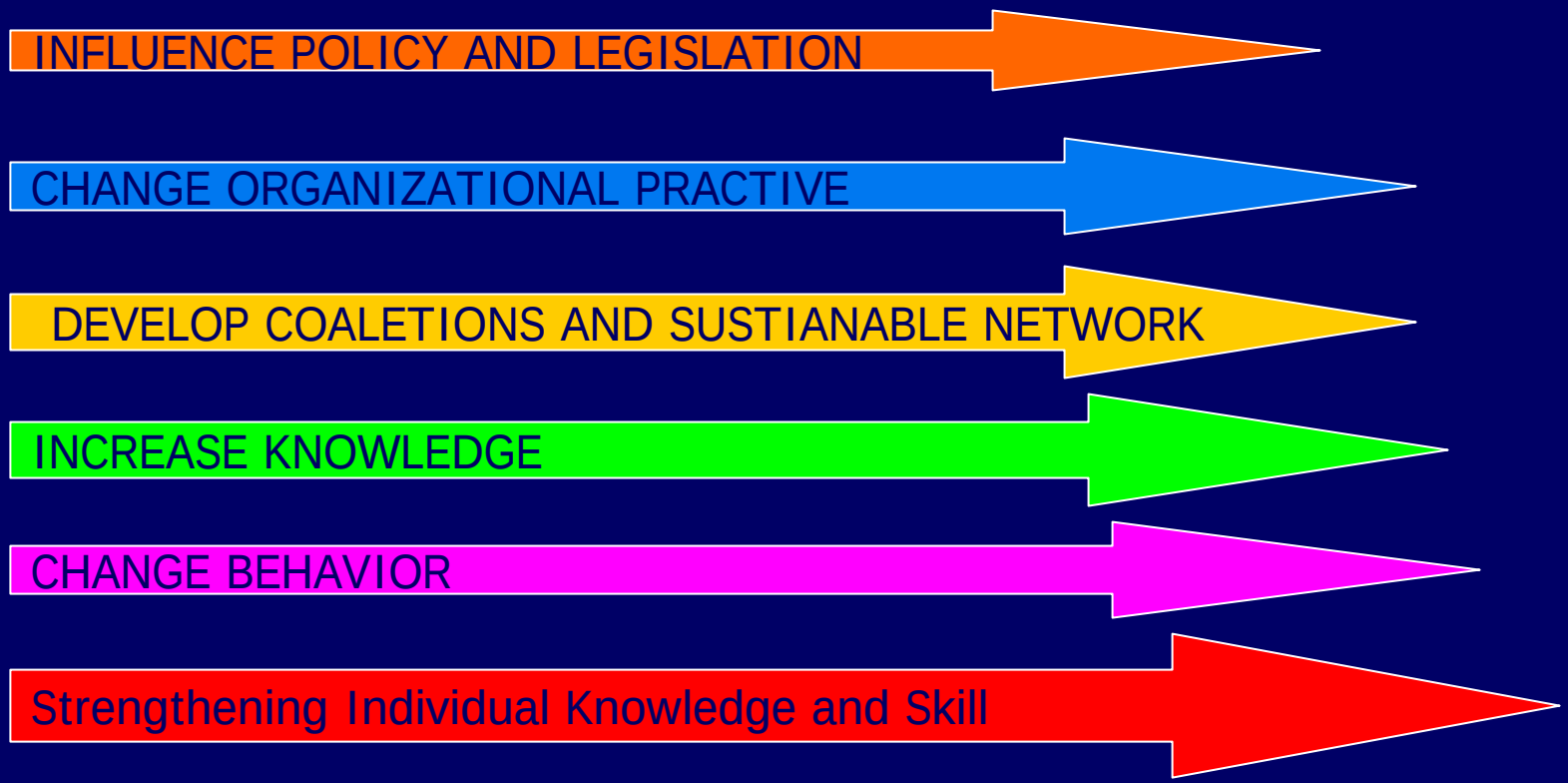
Differences between usual care and nurse-directed care may be greater in minorities (possibly true)

Total charges do not reflect actual costs nor reimbursements (cost savings can not be determined)

NEXT STEPS

- Translation of evidence based research studies into clinical practices
- Policy changes to expand the role of the RN provider in underserved populations
- Collaboration of entities that determine nursing practice (BRN, ANA,)
- Professional organization (AADE, ADA,
- Fostering physician mentoring and promoting partnership of physician nurse

CONCLUSION


INFLUENCE POLICY AND LEGISLATION
CHANGE ORGANIZATIONAL PRACTIVE
DEVELOP COALETIONS AND SUSTIANABLE NETWORK
INCREASE KNOWLEDGE
CHANGE BEHAVIOR
Strengthening Individual Knowledge and Skill

THANK YOU